

VEGETATION MANAGEMENT

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TREE

Q: *One of my customers is sore because two out of five Scotch pines I planted last fall died this spring, apparently by freezing. The five pines were planted as a border to the front yard, which faces south-west and slopes downward to the street. It is in a subdivision with very few trees. What can I do to avoid another loss this spring?*

A: Practically all plant injury blamed on excessive heat or cold is due to lack of water. Summer sun and dry winter winds cause leaf and stem cells to lose water faster than roots can replace it. Cells collapse and die and plants wilt as a result.

Winter desiccation is most severe on dry, exposed, windy, and sunny sites where surface runoff of water is high. Winter killing of trees and shrubs is common, following extreme and rapid fluctuations in temperature during late fall, winter and early spring. Sudden periods of bright sun, especially when coupled with warm, drying winds greatly increase the rate of the evapotranspiration. This occurs when root absorption is retarded or prevented by cold or frozen soil. Moderately hardy evergreens and deciduous landscape plants are frequently killed or severely injured by such conditions.

Roots are more likely to freeze in poorly drained soil than in well drained soils. Trees that are very susceptible to freeze damage in poorly drained soil include ash, elm, maple, and pine. Where necessary drains can be improved by installing tile or slit trenches and sloping the surface toward an open outlet. Tree root injury is most common during winters of light snowfall or in soil without grass, mulches, or other ground cover.

Winter desiccation injury appears on broad-leaf evergreens as an irregular brown scorching of the leaf tip and margin. On narrow leaf evergreens, the needles turn brown starting at the tips. These may later drop. Terminal buds and twigs dry out and become brittle and break easily when bent. Instead of leafing out properly in the spring winter injured deciduous plants may show die-back of the twigs and small branches or may even die.

To counteract desiccation during a dry autumn and early winter thoroughly water landscape plants, especially evergreens. The soil should be moist a foot or more deep. After watering, apply a three to eight inch mulch of organic material (e.g. sawdust, leafmold, wood shavings or chips). Mulching conserves soil moisture, prevents deep freezing, and averts the more serious alternate freezing and thawing that shears off feeding roots. It also

delays growth in late winter or early spring until the danger of frost is past.

Protect small evergreens and hedges against leaf scorch by erecting screens on the south and southwest sides of susceptible plants. Common windbreak screens are made of glass, burlap, canvas, plastic, or straw mats. Evapotranspiration losses can be reduced on evergreens by spraying the foliage, twigs, branches, and trunks with anti-desiccants such as Wilt Proof, MTF, and Foliguard in late fall. It may be necessary to repeat the spray during a mid-winter thaw if the temperature rises above 40 degrees F.

TURF

Q: *Although I'm in an area with little snowfall, there were an unusual number of days with temperatures below freezing last winter. This winter looks to be the same way. Last spring, I received an unusual number of calls from new homeowners who lost their lawns to what I think was heaving. Could you explain the causes of heaving?*

A: Contrary to popular opinion, frost heaving is not caused simply by the expansion of soil water as it freezes. When the temperature drops below freezing, ice forms on the soil surface. Water in contact with the lower surface of the ice layer eventually freezes if the temperature remains below freezing for long. As more water moves to the site of freezing, the ice layer is raised higher and higher causing the turfgrass plants to lift out of the ground.

Damage to established turfgrass is not usually severe, but frost heaving can cause significant injury to thin, poorly developed stands or late fall seeded areas. A well developed root system is a deterrent to heaving. Injury usually involves mechanical breakage of stem or root tissue or desiccation from exposure. Frost heaving is most common on fine textured soils having a high water content and no snow cover.

The potential for damage may be reduced by management practices conducive to deep rooting and by providing proper surface drainage. Injury to newly established turf areas may be avoided by good seed bed preparation, early fall seeding, and adequate soil fertility. Encouraging snow cover by the selected placement of screens may prove beneficial for small areas. A light rolling after the spring thaw, but not when the soil is too wet, will help correct the uneven turf surface caused by heaving and the resulting desiccation of crown tissue.